## SEQUENCE LISTING

- <110> Hartley, James L. Brasch, Michael A. Temple, Gary F. Fox, Donna K.
- <120> Recombinational Cloning Using Nucleic Acids Having Recombination Sites
- <130> 0942.2850004
- <140> US 09/177,387
- <141> 1998-10-23
- □ <150> US 60/065,930 <150> US <151> 199 <160> 60 <170> Pat <151> 1997-10-24

  - <170> PatentIn Ver. 2.0
- \* <210> 1
- <sup>}</sup> **<211>** 25
- <212> DNA
- <u>↓</u> <213> Unknown
  - <220>
  - <221> OTHER
  - <222> 10
  - <223> "n" may be any nucleotide
  - <223> Description of Unknown Organism: recombination products
  - <400> 1

rkycwgcttt yktrtacnaa stsgb

- <210> 2
- <211> 25
- <212> DNA
- <213> Unknown

-2-

```
<220>
  <221> OTHER
  <222> 18
  <223> "n" may be any nucleotide
  <223> Description of Unknown Organism: recombination
        products
  <400> 2
  agccwgcttt yktrtacnaa ctsgb
                                                                      25
  <210> 3
  <211> 25
  <212> DNA
  <213> Unknown
  <220>
  <221> OTHER
  <222> 18
  <223> "n" may be any nucleotide
  <223> Description of Unknown Organism: recombination
        products
¼ 4 4 0 0 > 3
gttcagcttt cktrtacnaa ctsgb
                                                                      25
  <210> 4
  <211> 25
  <212> DNA
  <213> Unknown
  <220>
   <221> OTHER
   <222> 18
   <223> "n" may be any nucleotide
   <223> Description of Unknown Organism: recombination
         products
   <400> 4
   agccwgcttt cktrtacnaa gtsgb
```

-3-

```
<210> 5
   <211> 25
   <212> DNA
   <213> Unknown
   <220>
   <221> OTHER
   <222> 18
   <223> "n" may be any nucleotide
   <223> Description of Unknown Organism: recombination
         products
   <400> 5
                                                                        ~ 25
   gttcagcttt yktrtacnaa gtsgb
<210> 6
   <211> 25
   <212> DNA
   <213> Unknown
   <220>
And had be then had
   <223> Description of Unknown Organism: recombination
          products
   <400> 6
                                                                         25
   agcctgcttt tttgtacaaa cttgt
    <210> 7
    <211> 25
    <212> DNA
    <213> Unknown
    <220>
    <223> Description of Unknown Organism: recombination
          products
    <400> 7
                                                                          25
    agcctgcttt cttgtacaaa cttgt
    <210> 8
     <211> 25
```

-4-

```
<212> DNA
  <213> Unknown
  <220>
  <223> Description of Unknown Organism: recombination
         products
  <400> 8
                                                                       25
   acccagettt ettgtacaaa gtggt
   <210> 9
   <211> 25
   <212> DNA
   <213> Unknown
<220>
  <223> Description of Unknown Organism: recombination
         products
  <400> 9
                                                                       25
   gttcagcttt tttgtacaaa cttgt
<210> 10
<sup>♣</sup> <211> 25
   <212> DNA
   <213> Unknown
    <220>
    <223> Description of Unknown Organism: recombination
          products
    <400> 10
                                                                        25
    gttcagcttt cttgtacaaa cttgt
    <210> 11
    <211> 25
    <212> DNA
    <213> Unknown
    <220>
    <223> Description of Unknown Organism: recombination
          products
```

	<400>	11	
	gttcag	cttt cttgtacaaa gtggt	25
	<210>	12	
	<211>	25	
	<212>	DNA	
	<213>	Unknown	
	40005		
	<220>	Description of Unknown Organism: recombination	
	<b>\223</b> /	products	
		produces	
	<400>	12	
	agccto	gcttt tttgtacaaa gttgg	25
	<210>	13	
5	<211>	25	
	<212>	DNA	
J	<213>	Unknown	
₽ ₽™	<220>		
	<223>	Description of Unknown Organism: recombination	
Hard and officer than the		products	
1	<400>		25
	agcct	gcttt cttgtacaaa gttgg	23
	<210>	14	
	<211>		
	<212>		
		· Unknown	
	<220>	<b>,</b>	
	<223>	Description of Unknown Organism: recombination	
		products	٠
		•	
	<400	> 14	
	accca	agcttt cttgtacaaa gttgg	25
	<210	> 15	

-6-

```
<211> 25
  <212> DNA
  <213> Unknown
  <220>
  <223> Description of Unknown Organism: recombination
        products
  <400> 15
                                                                      25
  gttcagcttt tttgtacaaa gttgg
  <210> 16
  <211> 25
  <212> DNA
  <213> Unknown
<220>
  <223> Description of Unknown Organism: recombination
pro
[]
[] <400> 16
         products
gttcagcttt cttgtacaaa gttgg
                                                                      25
<u>=</u> <211> 39
   <212> DNA
   <213> Unknown
   <220>
   <223> Description of Unknown Organism: recombination
         products
   <400> 17
                                                                       39
   ccaccacaaa cgcgtccatg gaattacact ttaatttag
   <210> 18
   <211> 39
   <212> DNA
   <213> Unknown
    <220>
```

-		escription of Unknown Organism: recombination products	
	<400> 1	.8	
	ccaccac	caag tegaegeatg eegaeageet tecaaatgt	39
	<210> 1		
	<211> 4		
	<211> 9		
		Artificial Sequence	
	<2137 F	Altificial Sequence	
	<220>		
	<223> I	Description of Artificial Sequence: synthetic oligonucleotide	
	<400>	19	
	ggccga	ttac gatateceaa egacegaaaa eetgtatttt cagggt	46
, J	<210>	20	
Q	<211>		
0	<212>		
		Artificial Sequence	
r C. D.			
-	<220>		
L LIL	<223>	Description of Artificial Sequence: synthetic oligonucleotide	
	<400>	20	
	caggtt	ttcg gtcgttggga tatcgtaatc	30
	<210>		
	<211>		
	<212>		
	<213>	Artificial Sequence	
	<220>		
	<223>	Description of Artificial Sequence: synthetic oligonucleotide	
	<400>	21	
		gatta cgatatccca acgaccgaaa acctgtattt tcagggt	47

```
<210> 22
   <211> 31
   <212> DNA
   <213> Artificial Sequence
   <220>
   <223> Description of Artificial Sequence: synthetic
          oligonucleotide
   <400> 22
                                                                         31
   caggitticg gicgitggga tatcgtaatc t
   <210> 23
   <211> 48
   <212> DNA
<213> Artificial Sequence
    <220>
    <223> Description of Artificial Sequence: synthetic
          oligonucleotide
P. P. III
    <400> 23
    ggccaagatt acgatatccc aacgaccgaa aacctgtatt ttcagggt
                                                                          48
land the first the
    <210> 24
    <211> 32
    <212> DNA
    <213> Artificial Sequence
    <220>
    <223> Description of Artificial Sequence: synthetic
           oligonucleotide
     <400> 24
                                                                          32
     caggttttcg gtcgttggga tatcgtaatc tt
     <210> 25
     <211> 15
     <212> DNA
     <213> Artificial Sequence
```

	<220>	
	<223> Description of Artificial Sequence: synthetic oligonucleotide	-
	<400> 25	
	acceptttace tegac	15
	<210> 26	
	<211> 31	
	<212> DNA	
•	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: synthetic oligonucleotide	•
	<400> 26	
I	tcgagtccac gtaaacggtt cccacttatt a	31
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		
	<210> 27	
C	<211> 39	
每	<212> DNA	
	<213> Artificial Sequence	
#4 #4		
¥Ω	<220>	
	<223> Description of Artificial Sequence: synthetic oligonucleotide	
	<400> 27	39
	uauuuucagg guatggagaa aaaaatcact ggatatacc	3,7
	<210> 28	
	<211> 33	
	<211> 33 <212> DNA	
	<213> Artificial Sequence	
	12107 Milliotal bequence	
	<220>	
	<223> Description of Artificial Sequence: synthetic oligonucleotide	٠.
	<400> 28	
	ucccacunan uacgeceege eetgecacte ate	33

```
<210> 29
  <211> 33
  <212> DNA
  <213> Artificial Sequence
  <220>
  <223> Description of Artificial Sequence: synthetic
         oligonucleotide
  <400> 29
                                                                          33
   uauuuucagg guatgcctgt tctggaaaac cgg
   <210> 30
(211> 34)
(0 <212> DN
(0 <213> Ar
   <212> DNA
   <213> Artificial Sequence
[ <220>
C <223> Description of Artificial Sequence: synthetic
         oligonucleotide
12
1
   <400> 30
ucccacuuau uatttcagcc ccagggcggc tttc
                                                                          34
C
<sup>♣</sup> <210> 31
   <211> 58
   <212> DNA
   <213> Artificial Sequence
    <220>
    <223> Description of Artificial Sequence: synthetic
          oligonucleotide
    <400> 31
    tccgttgaag cctgcttttt tatactaact tgagcgaagc ctcggggtca gcataagg
    <210> 32
    <211> 58
    <212> DNA
    <213> Artificial Sequence
```

```
<220>
 <223> Description of Artificial Sequence: synthetic
       oligonucleotide
  <400> 32
  ccaataactt cgtatagcat acattatacg aagttattgc cccttggtga catactcg
                                                                 58
  <210> 33
  <211> 20
  <212> DNA
  <213> Artificial Sequence
  <220>
  <223> Description of Artificial Sequence: synthetic
oligonucleotide
  <400> 33
                                                                 20
باً <212> DNA
<213> Artificial Sequence
Ç
   <220>
   <223> Description of Artificial Sequence: synthetic
         oligonucleotide
   <400> 34
                                                                  20
   gagcggcccc cgcggaccac
   <210> 35
   <211> 21
   <212> DNA
   <213> Artificial Sequence
   <220>
    <223> Description of Artificial Sequence: synthetic
         oligonucleotide
```

	<400>	35	
	ggccca	caag tttgtacaaa a	<b>~</b> <sup>21</sup>
	<210>	36	
	<211>		
	<212>	DNA	
	<213>	Artificial Sequence	
	<b>~</b> 220>		
,	<220> <223>	Description of Artificial Sequence: synthetic	
I Hand Hard then been the form the form		oligonucleotide	
	<400>	36	**
		eggae cactttgtae	20
	cccgc		
	<210>	37	
	<211>	21	
	<212>	DNA	
C	<213>	Artificial Sequence	
I III			
# # # # # # # # # # # # # # # # # # #	<220>		
	<223>	Description of Artificial Sequence: synthetic oligonucleotide	
1			
	<400>		21
	acaag	tttgt acaaaaagc a	21
	<210>	38	
	<211>	21	
	<212>	DNA	
	<213>	Artificial Sequence	
	<220>		
	<223>	Description of Artificial Sequence: synthetic oligonucleotide	٠.
	,		
	<400>		0.1
	accac	rtttgt acaagaaage t	21

```
<210> 39
  <211> 25
  <212> DNA
   <213> Unknown
   <220>
   <223> Description of Unknown Organism: recombination
         products
   <400> 39
                                                                         25
   rbycwgcttt yttrtacwaa stkgd
   <210> 40
   <211> 25
   <212> DNA
<213> Unknown
    <220>
    <223> Description of Unknown Organism: recombination
          products
    <400> 40
T.J
                                                                          25
   asccwgcttt yttrtacwaa stkgw
I II II'II II'II II'
    <210> 41
    <211> 25
    <212> DNA
    <213> Unknown
    <220>
    <223> Description of Unknown Organism: recombination
           products
     <400> 41
                                                                           25
     asccwgcttt yttrtacwaa gttgg
     <210> 42
     <211> 25
     <212> DNA
     <213> Unknown
```

```
<220>
   <223> Description of Unknown Organism: recombination
          products
   <400> 42
                                                                                    25
   gttcagcttt yttrtacwaa stkgw
    <210> 43
   <211> 25
    <212> DNA
    <213> Unknown
    <220>
    <223> Description of Unknown Organism: recombination
           products
The street s
    <400> 43
                                                                                     25
    gttcagcttt yttrtacwaa gttgg
    <210> 44
    <211> 25
    <212> DNA
    <213> Unknown
 Ly C
    <220>
     <223> Description of Unknown Organism: recombination
            products
     <400> 44
                                                                                      25
     tcggacgaaa aaatatgatt gaact
     <210> 45
     <211> 25
     <212> DNA
     <213> Unknown
      <220>
      <223> Description of Unknown Organism: recombination
             products
      <400> 45
```

.

	teggaegaaa aaacatgeet gaaca	
	<210> 46	_
	<211> 25	_
	<212> DNA	
	<213> Unknown	
	<220>	
	<223> Description of Unknown Organism: recombination	
	products	
	<400> 46	
	tcggacgaaa gaacatgttt gaaca	25
		•
	<210> 47	
	<211> 25	
0	<212> DNA	
	<213> Unknown	
I		
	<220>	
	<223> Description of Unknown Organism: recombination	
	products	
<u>_</u>	<400> 47	
	tgggtcgaaa gaacatgttt cacca	25
	<210> 48	
	<211> 24	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: synthetic	•
	oligonucleotide	
	<400> 48	
	aattotoatg tttgacaget tate	· 24
	<210> 49	
	<211> 21	
	<212> DNA	

```
<213> Artificial Sequence
   <220>
   <223> Description of Artificial Sequence: synthetic
         oligonucleotide
   <400> 49
   cgatggatat gttctgccaa g
                                                                      21
   <210> 50
   <211> 49
   <212> DNA
   <213> Artificial Sequence
(220)
   <223> Description of Artificial Sequence: synthetic
oligonucleotide
   <400> 50
   acaagtttgt acaaaaaagc aggctaattc tcatgtttga cagcttatc
                                                                      49
   <210> 51
   <211> 46
  <212> DNA
I
   <213> Artificial Sequence
Ö
   <220>
   <223> Description of Artificial Sequence: synthetic
         oligonucleotide
   <400> 51
   accactttgt acaagaaagc tgggtcgatg gatatgttct gccaag
                                                                      46
   <210> 52
   <211> 53
   <212> DNA
   <213> Artificial Sequence
   <220>
   <223> Description of Artificial Sequence: synthetic
         oligonucleotide
```

	<400> 52	
	ggggacaagt ttgtacaaaa aagcaggcta attctcatgt ttgacagctt atc	53
	<210> 53	
	<211> 50	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: synthetic oligonucleotide	
	<400> 53	•
J	ggggaccact ttgtacaaga aagctgggtc gatggatatg ttctgccaag	50
D		
H	<210> 54	
, <u>"</u>	<211> 23	
Ď	<212> DNA	
	<213> Artificial Sequence	
e PT	<220>	
1.3 1.3 h f. 1.4 1.4	<223> Description of Artificial Sequence: synthetic oligonucleotide	
1	<400> 54	
- III	aatacattca aatatgtatc cgc	23
	<210> 55	
	<211> 22	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Description of Artificial Sequence: synthetic oligonucleotide	
	<400> 55	
	ttaccaatgc ttaatcagtg ag	22
	<210> 56	

```
<211> 48
              <212> DNA
              <213> Artificial Sequence
               <220>
               <223> Description of Artificial Sequence: synthetic
                                         oligonucleotide
               <400> 56
                                                                                                                                                                                                                                                                                                           .48
               acaagtttgt acaaaaaagc aggctaatac attcaaatat gtatccgc
               <210> 57
               <211> 47
               <212> DNA
               <213> Artificial Sequence
100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 
                <220>
                 <223> Description of Artificial Sequence: synthetic
                                          oligonucleotide
                 <400> 57
                 accactttgt acaagaaagc tgggtttacc aatgcttaat cagtgag
                                                                                                                                                                                                                                                                                                             47
  <210> 58
                 <211> 52
                <212> DNA
                  <213> Artificial Sequence
                  <220>
                  <223> Description of Artificial Sequence: synthetic
                                            oligonucleotide
                  <400> 58
                   ggggacaagt ttgtacaaaa aagcaggcta atacattcaa atatgtatcc gc
                                                                                                                                                                                                                                                                                                                52
                    <210> 59
                    <211> 51
                    <212> DNA
                    <213> Artificial Sequence
```

		<
		ç
		<
		<
		. <
		<
		<
		<
المومولة الأممان الله اللهواة الله المهورة الموادية		< a
100,000	£	
.03.		

<220>		
<223>	Description of Artificial Sequence: synthetic oligonucleotide	
	•	
<400>	59	
gggga	ccact ttgtacaaga aagctgggtt taccaatgct taatcagtga g	51
<210>	60	
<211>	25	
<212>	DNA	
<213>	Unknown	
<220>		
<223>	Description of Unknown Organism: recombination	~ ^
	products	
4400		
<400>		
agccto	gcttt tttatactaa cttga	25